P-709

B. Sc. (Biotechnology) III Year Examination, 2015

GENOMICS AND PROTEOMICS

Paper : XIII

Time : Three Hours]　　　　　　　　　　　　　　*[Maximum Marks : 75*

Note : Attempt *all* questions from *Section-A,* *eight* questions from *Section-B* and *two* questions from *Section-C.*

SECTION – A　　　　　　　　[Marks : 10 × 2 = 20

1. Write short notes on the following :

   (a) Hypothetical proteins

   (b) Site-directed mutagenesis

   (c) Secondary protein structure

   (d) Merits of DNA microarrays

   (e) Phylogenetics

   (f) RFLP

   (g) Proteome and proteomics

   (h) Designing proteins

   (i) Human genome project

   (j) Two - dimensional gel electrophoresis

SECTION – B　　　　　　　　[Marks : 8 × 5 = 40

1. Discuss the significance of Ramachandran plot in determining the structure of a protein.

2. Discuss the advantages and disadvantages of Edman degradation.

3. Microarrays can be used to measure mRNA levels. Justify.

4. What are fibrous proteins and globular proteins ?

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5. Write brief note on restriction endonucleases.

6. What is bioinformatics ?

7. Describe homology modelling.

8. Describe how a genome can be mapped.

9. Explain in brief post-translational modifications.

10. PCR can be used to create mutations. Justify.

SECTION – C [Marks : 2 × 7½ = 15

1. Describe mass spectrometry ? Give an account of its role in protein structure determination.

2. Describe different techniques that are extensively used in the area of biotechnology based on nucleic acid hybridization.

3. Discuss the significance of protein and nucleic acid databases.